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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,253	08/24/2001	James M. Derderian	4830US (01-0106)	2189

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 05/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/939,253

Applicant(s)

DERDERIAN, JAMES M.

Examiner

Alexander O Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 14-16, 27-30, 34-36, 41 and 48-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 17-26, 31-33, 37-40 and 42-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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Serial Number: 09/939253 Attorney's Docket #: 4830US(01-0106)

Filing Date: 8/24/01;

Applicant: Derderian

Examiner: Alexander Williams

Applicant's Amendment in Paper # 15, filed 4/25/03, has been acknowledged. The claims being examined are claims 1 to 13, 17-26, 31 to 33, 37 to 40 and 42 to 44

This application contains claims 14 to 16, 27 to 30, 34 to 36, 41 and 48 to 67 drawn to an invention non-elected without traverse in Paper No. 11.

This application contains claims 68 to 102 drawn to an invention non-elected with traverse in Paper No. 9.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:  
A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 11, 17 to 26, 31 to 33, 40 and 42 to 44 are rejected under 35 U.S.C. § 102(e) as being anticipated by Foster (U.S. Patent # 6,552,416 B1).

For example, in claim 1, Foster (figures 1 to 9A) specifically figures 4 and 8 show a semiconductor device for use in a stacked multi-chip assembly, comprising: a semiconductor die **30**; and a dielectric spacer layer **(40 in figure 4 and 32 in figure 8)** formed on at least a portion of a surface of said semiconductor die and protruding therefrom substantially a predetermined distance that said semiconductor die and an adjacent semiconductor die **31** of said stacked multi-chip assembly are to be spaced apart from one another, said spacer layer including voids **(in figure 8, middle portion between the two 32s)** communicating with a lateral periphery thereof (see column 4, lines 17-41).

For example, in claim 19, Foster (figures 1 to 9A) specifically figures 4 and 8 show a semiconductor device assembly, comprising: a first semiconductor device **30**; a nonconfluent spacer layer **(40 in figure 4 and 32 in figure 8)** comprising dielectric material and being positioned on a surface of said first semiconductor device, a second semiconductor device **31** positioned over said first semiconductor device, a surface of said second semiconductor device being adhered to said nonconfluent spacer layer (see column 4, lines 17-41).

Initially, it is noted that the 35 U.S.C. § 103 rejection based on a substrate and the combination of a inner lead trace ILT and a inner lead tape ILT deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use

of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Claims 37 to 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. Patent # 6,552,416 B1).

In claim 37, Foster (figure 4) show a substrate (**the combination of 32 and 20**) upon which one of said first semiconductor device 30 and said second semiconductor device is positioned.

In claim 38, Foster (figure 4) show at least one bond pad 36 of at least one of said first semiconductor device and said second semiconductor device 31 is in communication (**through 35**) with a corresponding contact area (**portion of which 35 contacts 20**) of said substrate (**combination of 20,32**).

In claim 39, Foster (figure 4) show the substrate comprising at least one of a circuit board, an interposer, another semiconductor device, and leads 20.

Therefore, it would have been obvious to one of ordinary skill in the art to use the combination of a inner lead trace ILT and a inner lead tape ILT as the substrate as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. Patent # 6,552,416 B1) and in view of Smith, Jr. et al. (U.S. Patent # 6,049,370).

Foster show the features of the claimed invention as detailed above, but fail to explicitly show a spacer layer comprising polymer, where as the polymer comprises a photoimageable polymer. Foster does disclose that the spacer can be a non-conductive material, depending on the electrical function (see column 4, lines 17-41). Photoimageable polymer is defined to be a photoresist polymer.

Smith, Jr. et al. is cited for showing liquid crystal light valve using internal, fixed spacers. Specifically, Smith, Jr. et al. (figures 2 to 5) specifically figure 3 discloses a variety of materials may be used to form the spacer pads 40, including an oxide, such as silica or indium tin oxide, a metal, such as chromium, aluminum, or gold, and polymers, such as polyimides or photoresist materials for the purpose of giving spacing between electrical connecting materials.

Therefore, it would have been obvious to one of ordinary skill in the art to use Smith, Jr. et al.'s photoresist polymer spacer to modify Foster's spacers for the purpose of giving spacing between electrical connecting materials.

Claims 13 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. Patent # 6,552,416 B1) and in view of Mueller et al. (U.S. Patent # 6,316,786 B1).

Foster show the features of the claimed invention as detailed above, but fail to explicitly show a spacer layer comprising at least one of a glass, a silicon oxide, a silicon nitride, and a silicon oxynitride. However, Foster does disclose that the spacer can be a non-conductive material, depending on the electrical function (see column 4, lines 17-41).

Mueller et al. is cited for showing an organic opto-electronic devices. Specifically, Mueller et al. (figures 1A to 3c) specifically figure 1B discloses spacers 13 and 15 comprising silicon nitride, SiN.sub.x, SiO.sub.x,

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SiO.sub.2, Siliconoxynitride (SiON), organic compounds such as polyimides, aluminiumoxide, aluminiumnitride, or titaniumoxide, for example for the purpose of providing sufficient contact between the layers and damage between the layers are avoided.

Therefore, it would have been obvious to one of ordinary skill in the art to use Mueller et al.'s spacer to modify Foster's spacers for the purpose of providing sufficient contact between the layers and damage between the layers are avoided.

## Response

Applicant's arguments filed 4/25/03 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The insertion of Applicant's additional claimed language in the Amendmnet filed 12/9/02, for example, "in claims 1 and 19" cause for further search and consideration to make this action final.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY

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PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE  
OF THIS FINAL ACTION.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/686,685,777,778,784-787,734,737,738,723,730,773	9/9/02 2/22/03 5/8/03
Other Documentation: foreign patents and literature in 257//686,685,777,778,784-787,734,737,738,723,730,773	9/9/02 2/22/03 5/8/03
Electronic data base(s): U.S. Patents EAST	9/9/02 2/22/03 5/8/03

***Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.***

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is **(703) 308-4863**.



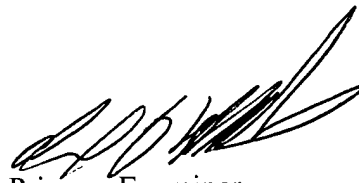
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Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center 2800 receptionist** whose telephone number is **(703) 308-0956**.

5/8/03

A handwritten signature in black ink, appearing to read 'A. Williams', is written above the printed name.

Primary Examiner  
Alexander O. Williams